1872

Figures of Course on Hygiene, to be memorized.

1872.

Average daily amount of food.

Weekly allowance for institutions, armies, &c

Average time for digestion of a dinner.

Specific gravity of good milk,

Amount of cream on " "

Composition of good wheat.

Amount of organic matter, & of solids, in good drinking water

Quantity of water needed daily, per head.

Amount of lead making drinking water unsafe.

Alcoholic strength of ale, wines & spirits.

Maximum of arsenic	eaten as a stimulant	
Ditto of opium	or laudanum, &c	

Proportion of principal constituents of the atmosphere

~~Extent of~~ increase of Carbonic acid in rooms &c

Proportion of Carbonic acid in air dangerous to life.

Amount of variation of height of barometer

Degree of relative humidity desirable for health

Amount of air used by an adult in breathing in 24 hours

Minimum of required air space — Dormitories & hospitals.

Figures —

Average daily amount of food for an adult — 40 oz. solid, at least 2/3 of it vegetable; & 20 to 50 oz. liquid. For weekly allowance — in institutions, armies, &c, — not less than 260 oz. of solids per week.

Time required to digest an ordinary dinner 3 to 4 hours.

Specific gravity of good cow's milk, 1028-32 compared with water 1000.

Percentage of cream ought to be from 8 to 12 parts in 100 of cow's milk.

~~Time of soaking chopped beef for beef-tea (1 pound to pint, or ½ pint, of water) 2 hours; then boil for ½ an hour only.~~

~~For beef essence, boil water around the bottle of chopped beef, 3 or 4 hours.~~

Heat necessary for disinfection

Number of windows in hospital

Height of ceiling, ditto

Dimensions of ditto

Highest temperature in shade, U. S.

" " in sun

Lowest, in Philada.

Annual mean, Phila. & N. York

Annual rainfall — Phila. & London

Maximum ditto, anywhere

Annual mean temperature of torrid climate

" " " temperate "

" " " frigid & polar

Temperature of baths — cold, cool, tepid, warm, hot,

& hot dry air bath

Summer temperature of surf at sea shore

Average amount of work of a day laborer

Maximum " " " " "

Length of step in marching — rate per hour — per day

Composition of good wheat,

10 to 14 per cent. of gluten & albumen,

50 to 75 per cent. of starch, — the rest sugar, gum & salts —

In good drinking water,

(10) not more than 1½ grains of organic matter in a gallon — total solids better not to be more than 35 grains per gallon, — although 50 or more grs mineral solids allowable.

Amount of water needed daily in food and drink, on the average, ½ fl. oz. for each pound of one's weight; part being in solid food; actual quantity varying with exercise & temperature.

(10)

Including cleaning of person & clothing, ~~10 gallons daily per head; 9 gallons more for~~ & beverage, in all, 25 to 30 gallons daily. In hospitals (for baths also) 40 to 50 gallons daily.

Amount of sleep required
in 24 hours for adult
" " " " for young persons

Hours of study, for mature & young student

Best number of school hours, for health

Age of greatest number of insane, Europe
" " " " " America

Proportion born of the two sexes
" dying " " " ex.

Probable annual mortality everywhere
Actual annual mortality, Phila.
" " " " N. York
" " " " London
Maximum, " " " " N. Orleans

Average age at death of mankind
the world over

(10) (3)

Quantity of lead in drinking water which will cause symptoms of poisoning in some persons, 1/100 of a grain in a gallon; unsafe for every one, 1/10 of a grain per gallon.

~~Rhein in Tea, — 1/2 per cent to 2 per cent.~~

~~Cocoa butter in cacao, over 50 per cent.~~

Alcoholic strength of ale, 5 to 10 per cent. of alcohol by weight. Lager bier from 4 to 7 or 8 per cent. (5)

(10)

Portwine, Madeira & Sherry, 16 to 25 per cent. by weight. Claret, 7 to 15 or 18. Champagne, 5 to 15. Rhine wines, 5 to 15. Whiskey, Gin, Brandy, about 50 per cent. Rum, 50 to 75 or more. (10)

~~Hippiane does, — 1/2 glass wine or ale; one or two bottles porter to a tablespoonful, 1 spirits.~~

Amount of nicotin in tobacco, 2 4 8 per cent.

~~Dose of tobacco [illegible]~~

Maximum amount of arsenic known to be eaten daily by those long accustomed to it, 3 or 4 grains.

Maximum of laudanum said to have been taken in ~~a day~~ 24 hours, one quart! Of sulphate of morphia, 20 grains. These amounts however, are very rare. A wineglassful of laudanum daily is less uncommon, after long habit. Laudanum takers, commonly, very much less than this. Average, probably not even so much as, if not beyond, a teaspoonful daily, even after the habit is confirmed.

Of the Contents of the Atmosphere, the substances are all well to remember; but the figures that are important, are

Oxygen - nearly 1/5

Nitrogen - nearly 4/5

Carbonic acid 4 parts in 10,000 average = 1/2500

Increase of Carbonic acid in close apartments sometimes up to over 60 parts in 10,000; seldom, however, more than 20 or 30 ditto.

Fatal to man, from 10 per cent. down sometimes to less than 5 per cent. Even 2 per cent. ~~breathed for some time~~ is dangerous.

Of the Barometer, the height of the mercury, the extreme range of variation is about 3 inches: from about 28° to about 31°.

A desirable relative humidity, Saturation being 100, — will be about 68.5.

amount of Air used up by an adult man in 24 hours, about 350 cubic feet. Minimum proper air space for one healthy person in a Dormitory, 700 cubic feet. In hospital — minimum 1000, better 1500 cubic feet per patient, 2000 cub. feet of air per hour for each patient, desirable.

Heat necessary to disinfect rapidly, 200° to 300° — even 150° continued for a number of hours may do.

For disinfecting privies, 1 pound of sulph. iron or chloride of lime in a gallon of water. For water-closets or bedpans, — 1 fl oz. Chloride of soda liquid, to a quart of water. Carbolic acid from 1 per cent to 90 per cent solution. Permang. potassa for washing clothes 1/3 oz. to 1 gallon of water,

(10) (7)

Windows in a hospital-ward — 1 for every 2 beds.

Desirable height of ceiling for hospital, not less than 20 feet — better more. Some authorities say as low as 16 feet.

Dimensions of ward, preferred, 25 feet by 80 — for 24 to 32 patients.

---

(10)

Highest temperature ~~heat~~ in shade anywhere in U.S., 113°, in part of California & Texas: in sun 134° to 136°; lowest ever known in Philada, −14°. Average for year at Phila. 53° — New York 52°

(4)

Annual rainfall at Phila. 42 to 45 in. London 20 in — Maximum anywhere, over 600 in

(10) (8)

Torrid Climate — Ann. Mean 80° F.

Temperate — 50° to 60°

Frigid & Polar — 32° to 0°

Cold bath — 32° to 70° F.

Cool 70 to 85°

Tepid — 85° to 90°

Warm 90° to 96°

Hot 96° to 100°

Hot air, dry, 130° to 250°

Vapor 100° to 120°

Summer

~~Temperature of Sea water at Cape May, Nov. 70° to 60°~~

~~Hygienic time in surf at once, 15 minutes!~~

Average work of a day laborer = 300 foot-tons — i.e. tons lifted 1 foot in the day. Maximum, over 700 tons.

In marching, length of (10) step, slow or quick time, 28 & 30 in. Double quick, 36 in. — per hour, a little under 3 miles average. Average days march for soldiers (or others carrying any luggage), 12 miles — Possible forced march with good men, rarely more — this 40 miles — Destructive however if repeated. Maximum of pedestrianism, 100 m. in 22 hrs, 500 m. in 5 days.

Gen. Mackenzie with cavalry, in 1873, pursued some marauders into Mexico, over 100 miles there and back, in 41 hours, fighting & capturing on the way

Amount of sleep needful in 24 hours for every adult, to preserve health:— Minimum, 6 hours— almost every one better with 7— many who work hard with brain or muscle, best with 8— some 9; especially those of nervous temperament.

Young persons more; infants 10 to 12 hours of the 24— & gradually lessening thro' childhood & youth. Under 10 years they need 10 hours.

Hours for study— Mature student, enough, 8— average 6;— under 12 yrs, 3— for school, best experimentally; 2 sessions, 5 hours in all. If 1 session, never more than 5 hrs, with ½ hr. recess. Change place or room every hour at least.

Age of greatest no. of marriages,

in America between 20 & 30 yrs —

Europe, 30 to 40 "

Of those born of the two sexes, — there are less than 9400 females to every 10,000 males; but for every 10,000 males dying, less than 9200 females die — so that the population of the world is on the whole kept even —

Mortable annual mortality

everywhere — 15 to 17 per 1000.

Deaths actually, — 18.70 N.Y.,

28.(8) to 1000 — Phila, nearly 23 —

London 24 — N.O. has been formerly some years, 80.

Average age of man at death the world over, 33 yrs.

Figs. Hygiene

Questions

Questions On Physiology & Hygiene — at Wm. Colley — 1873

1873

1. ~~State the principle elements found in the human body; also, 5 organizable proximate principles, and 5 unorganizable proximate principles found in the "Cell-theory" to the particular time of the authors' (Name?) in the progress of the secretions.~~ (10)

2. What is the probable immediate source of the force used in the body for muscular action? (5)

3. Describe the whole process of the digestion of a piece of bread and butter. (10)

4. Compare the arm and hand of a man with the anterior limb of a monkey, horse, bat and bird. (8)

5. State, 1st, a physiological, and 2nd, the common clinical classification of the forms or kinds of insanity. (10)

6. Explain the mechanism of inspiration, of ordinary expiration, and of forced expiration. 5

~~6. What is the probable use of the hairs of the ear? (15)~~

7. Why do we need to explain our not seeing all objects upside down; and what is the best explanation therefor? (10)

8. Mention four ways or modes in which disinfectants may act; with an example under each. (10)

9. Describe the usual effects of the cold, warm, and hot air baths, and state how we may know, in any case, whether cold bathing is beneficial or not. (10)

10. State the order of succession of spontaneous changes in milk; its principal modes of deterioration; and the methods of detecting and exposing these. (10)

Questions
On
Physiology & Hygiene

W. W. C.

1873

Mrs Robert
Mc Farlane

1873

Questions on Physiology & Hygiene — W. M. C. — 1873.

1. State the principal steps (without the authors' names) in the progress of the "Cell-theory" to the present time.

2. What is the probable immediate source ~~of the force used in the act of mastication and those of the O2 for muscular action?~~

3. Describe the whole process of the digestion of a piece of bread and butter.

4. Compare the arm and hand of a man with the anterior limb of a monkey, horse, bat and bird.

5. State ~~the~~ physiological, and also the common clinical classification, of the forms or kinds of insanity.

6. Explain the mechanism of ~~the~~ ordinary respiration, and of forced expiration.

7. Why do we need to explain our not seeing all objects upside down; and what is the best explanation therefor?

8. Mention four ways or modes in which disinfectants may act; and give an example under each.

9. Describe the usual effects of the cold ~~bath~~, the warm ~~bath~~ and the hot air bath; and state ~~how we may know in any case the proper test for the suitableness~~ cold bathing is beneficial ~~or injurious~~ or not.

10. Mention the order of succession of spontaneous changes in milk; its ~~principal~~ modes of deterioration; and the methods of detecting and exposing these.

1874

Questions on Physiology & Hygiene

WMC. 1874.

1. Compare the teeth and alimentary canal, respectively, of man, with those of the lion and those of the sheep; and state the argument deduced therefrom concerning the kind of diet natural to man.

2. State what is known about the coagulation of the blood.

3. Give an account of the chyle; its origin, nature, place and movement, final destination and use.

4. State the functions, respectively, of the medulla oblongata; rods of Corti of the ear; choroid coat of the eye; inferior ligaments of

the larynx; and lingual branch of the 5th pair of nerves.

5. Mention five different kinds of natural water, and state the nature of their ~~[illegible]~~ differences and comparative adaptation for use; ~~[illegible]~~ also a disease which is promoted ~~[illegible]~~ by impure drinking water.

Questions on Physiology & Hygiene.

WMC. 1874.

W.M.C. Physiology ~~1874~~. [1875?]

Nerves of taste

Rigor mortis

Ménière's disease - what does it illustrate or exemplify -

Nervous system of starfish -

oyster - lobster - vertebrate

Circulation of insect -

heart of fish, reptile, bird & mammal

What disease a ganglionic tetanus - what medicines - general ganglionic stimulants?

Functions of cerebellum

What definition or account of instinct?

Fritsch, Hitzig & Ferrier's exper. & conclusion

Functions of 3d, 6th, ~~[illegible]~~ & ~~[illegible]~~

parts of 8th p. of nerves

Unconscious cerebration

Eustachian tube - ciliary muscle -

ceruminous glands - leucocytes - lacteals -

Physiological explana. of table-turning

Changes of eyes & sight from old age - myopia - hypermetropia - asthenopia

Kinds of deafness, less or greater

How know hemorrhage from arteries or veins

How to find the arteries in any region of the body -

Length of time to Produce Death.

Prussic Acid or Cyanide of Potassium, from a few minutes to 2 or 3 hrs.

Strychnia, from 10 minutes to 6 hrs.

Aconite, 3 or 4 hrs.

Arsenic, from 20 minutes to 4 hrs.

Opium or Morphia, 6 to 12 hrs.

Gelseminum, 7 or 8 hrs.

Stramonium, 8 hrs.

Digitalis, over 20 hrs.

Sulphuric or Hydrochloric Acid, 16 to 24 hrs.

Nitrate of Silver, uncertain; seldom fatal.

Oxalic Acid, from a few minutes to several days.

Ammonia, a few minutes.

Corrosive Sublimate, less than half an hour.

Phosphorus, 4 hrs.

Nitric Acid, an hour and three quarters.

Chloride of Barium, 2 hrs.

Nitrate of Potsasium, 2 or 3 hrs.

All irritant poisons are variable in the time elapsing before death.

Physiology

Fibrin – (globul. or fibrinoplastin –
paraglob. or fibrinogen)

4 reasons for believing that the bile assists in digestion –
Exp. of Bd & Schw
1 hr after meal
must enter al. canal
mostly reabsorbed

Glycogen

Osmosis

animals and plants – & man

1 3 types of respiration – meat – fish – mammal

Compare circula. in art. & veins

1 Urea – aphasia –

1 Pepsin – lactin – cholesterin –

hæmoglobin – glycogen –

Spec. grav. of urine

good – cows milk –

Spontan. generation –

3 classes of reflex actions,
with example of each

Inhibition –

Aphasia –

Sleep & somnambulism

Cephalization – homology
rudimentary parts –

Length of time to produce Death.

Prussic Acid or Cyanide of Potassium, from a few minutes to 2 or 3 hrs.

Strychnia, from 10 minutes to 6 hrs.

Aconite, 3 or 4 hrs.

Arsenic, from 20 minutes to 4 hrs.

Opium or Morphia, 6 to 12 hrs.

Gelseminum, 7 or 8 hrs.

Stramonium, 8 hrs.

Digitalis, over 20 hrs.

Sulphuric or Hydrochloric Acid, 16 to 24 hrs.

Nitrate of Silver, uncertain; seldom fatal.

Oxalic Acid, from a few minutes to several days.

Ammonia, a few minutes.

Corrosive Sublimate, less than half an hour.

Phosphorus, 4 hrs.

Nitric Acid, an hour and three quarters.

Chloride of Barium, 2 hrs.

Nitrate of Potsasium, 2 or 3 hrs.

All irritant poisons are variable in the time elapsing before death.

[N.D.] (1)

1. What proposition concerning the life-force is of fundamental importance in rational pathology?

2. (1) State the principal steps (authors' names not necessary) in the progress of the "cell-theory" to the present time.

3. State what you know of the coagulation of the blood.

4. ~~Describe the~~ Give the history of the chyle; — its ~~formation~~ mode of production, ~~blood~~, movement, and final destination.

5. What organs take part in the function of assimilation?

6. State all you know about osmosis.

7. What are ~~the~~ essential differences between animals and plants?

8. Describe the arrangement of the digestive apparatus of the sheep, showing how it differs from that of man.

(2)

9. (2) Compare the teeth of man with those of the lion and the ox.

10 (3) Describe the whole process of the digestion of a piece of bread and butter.

11. Describe the heart of a fish, a reptile, a bird and a mammal.

12. Explain the terms systole, diastole, heart's impulse, ~~the heart~~ vaso-motor nerves, and nutritive affinity.

13. State two opposite views, held by different authors, concerning the arterial circulation, and its regulation by the sympathetic (ganglionic) nervous system.

14. What is the normal blood-heat in man; and ~~[illegible]~~ by what means is it sustained in the body?

15. State what you know of the production, composition and uses of the bile.

16. What are the uses of the skin, and of its secretions?

17. What is the probable immediate source of the force used in the body for muscular action?

18. Give an account of the Rigor mortis.

19. (5) Compare the arm and hand of a man with the corresponding limb of a ~~monkey~~, horse, bat and bird.

20. (5) Describe the spinal plan of the Nervous System of a radiate, a molluscous, an articulate and a vertebrate animal.

21. Give an example of a simple excito-motor — a sensori-motor, & an emoto-motor action.

22. Name three theories of the function of the Cerebellum, and state which is preferable.

23. Mention the functions of the 2nd, 6th, 1st branch of the 5th, 9th, and spinal accessory nerves.

(4) 24. Give 1st, the physiological, and 2nd, the usual clinical classifications of the ~~different~~ forms or kinds of insanity.

25. (3) What is the probable function of the rods of Corti?

26. (2) Why do we need to explain why we do not seeing all objects inverted; and what is the best explanation therefor?

27. (1) What is the pathology of stammering; and what is its best principle of cure?

[N.D.]

Memoranda

for

Examination

on

Hygiene.

Figures — Numbers — In Hygiene — Required.

Respiration: About the proportion of O, N & CO_2 in atmosphere.

79 - 21 - $\left(\frac{1}{2500}\right)$

Percentage of CO_2 dangerous:

10 — 5 — 2.

Extreme range of variation of barometer: 3 inches.

Desirable relative humidity: between 65 & 70, sat. = 100.

Temperature for heat disinfection: 150° to 300° Fahr.

1 gallon a minute

Air used up by adult man in 24 hours — 350 cub. feet.

Minimum lodgg. room, 700 cub. feet

Space per patient in hosp. ward, 1500 cub. feet.

Desirable air supply per hour, — 2000 cub. feet each patient.

Dimensions of a model Hosp. ward,
80 × 25 × 20 ft –
for 20 to 24 men.
5 or 6 windows each side.

Highest temperature in the shade, 120° Fahr.
Lowest " —74° "

Annual mean of torrid climate, 77°–80°

Annual mean at Philada, 53° Fahr.

Greatest annual rainfall anywhere, over 600 inches.

Annual rainfall at Philada, 42 "

Temperature of Cold Bath – 32° — 70° F.
Cool " 70° — 85°
Tepid " 85° — 90°
Warm " 90° — 96°
Hot " 96° — 100°
Vapor – never above 120° –
better below 110°.
Hot air " 130° – 250°

Estimated muscular strength of a man,
1/7 to 1/10th of a horsepower.
Average ordinary day's labor – 300 tons lifted 1 foot.
Maximum — over 700 " " "

Amount lifted in walking on a level,
1/20th of the body's weight through the
distance walked,

Maximum of human walking — (Weston)
100 miles in 22 hours —
400 " in 5 days.
Maximum of human lifting - 2200 lbs (Windship)
Average day's march for soldiers
12 miles. (14?).

Required amount of solid food
for an adult daily — 40 oz, 2/3 veg.
— with 20 to 40 or 50 fl oz. liquids —
Minimum food, about 20 oz solids
(leaving out Cornaro)

Specific gravity of good milk —
1028 to 1032 (minimum 1027.)

Proportion of cream rising — 8 to 15
parts in 100 —
Minimum allowable, 7 or 8 — maximum (raw) 30
9 per cent, usual with good milk, ^
12 not at all uncommon.

Time required to obtain the strength of beef-essence, without contact with water, boiling the water around it, 3 hours or more.

Time to macerate beef for beef tea, 2 hours; then boil 20 to 30 minutes.

Amount of gluten in good wheat, 10 to 15 per cent;
" starch, 60 to 75 per cent.

Estimate of water-supply per head in a community, 25 to 30 gallons daily; for personal consumption (in food & drink) 1/2 ounce for each pound of weight.

Organic matter in the best drinking water 1 1/2 gr. in a gallon
10 gr. maximum allowable,

Alcoholic strength of Beers,

1 to 10 per cent.;

lager about 5 to 6;

porter 4 to 8;

ale 7 to 10;

Port wine	15 —	24
Sherry	"	25
Madeira	"	22
Claret	5	15
Champagne	5	15
Rhine wines	5	16

Brandy, Whiskey, Gin, Rum, — about 50 per cent.

Hypnotic Dose of ale, — 2 fl oz.

(for a man not accustom) red wine (sherry) 1 fl. oz.,

whiskey — 1 fl drachm to ½ fl oz.

For women — rather less —

For children — fractions only of the same.

Amount of sleep required nightly for adult — 6 hrs minimum —
7 required by most persons
8 better for every one,

Child of 10 yrs — 10 & 12 hours sleep.

Age of greatest number of insane patients,
Europe between 30 & 40 yrs —
America " 20 & 30 "

Hours of daily study —
maximum 16
Sufficiency for almost all, 8

Child of 12 years — 3.

Maximum time of detention at quarantine necessary for a ship under any circumstances with cleaning & heat disinfection —
5 days. — (a minority opinion)

Lowest inevitable annual mortality

anywhere — 15 & 17 per 1000 inhabitants —

Average length of life the world over,

33 to 35 years (approximation!)

In Great Britain (& ~~portions~~ U.S.)

about 40 years —

Average births to a marriage)

Europe & America — 3 to 4

Females born to 100 males,

about 93½

" die " "

about 92.

Deaths to population, annually, U.S.:

about 1 in 45

Mortality of Cities annually, about from

25 to 35 per 1000.

Deaths from phthisis — 1/8 to 1/5 of total mortality.

In a city — for every death about 25 cases sickness.

In an army — " " " from 5 to 10 " "

Total Population of the world, nearly 1400 millions: U.S., 38½ mill.

1870 Census.

Mortality, larger cities of children under 1 year of age from 1/4 to 1/5 of total mortality under 5 years — nearly or quite 1/3 sometimes

Figures

in

Hygiene.